

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re:	Zhong et al.	Confirmation No.:	9710
Appl. No.:	10/647,062	Art Unit:	3663
Filed:	August 22, 2003	Examiner:	Luu, Matthew
For:	CORE AREA TERRITORY PLANNING FOR OPTIMIZING DRIVER FAMILIARITY AND ROUTE FLEXIBILITY		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**REMARKS ON
INFORMATION DISCLOSURE STATEMENT**

Dear Sirs:

Certain facts were presented for consideration by the USPTO before issuance of the previously amended claims in documents accompanying an information disclosure statement previously submitted to the USPTO on March 9, 2007. Those documents included a National Science Foundation ("NSF") grant, a declaration provided by Dr. Hongsheng Zhong, a co-inventor of the application, and a copy of Dr. Zhong's Ph.D. proposal. The applicants request the Examiner to consider these remarks in conjunction with the above identified IDS and the documents submitted therewith.

DISCUSSION

Introduction

The Applicants provided on March 9, 2007, an IDS that included a declaration by one of the co-inventors of the present invention, Dr. Zhong. The declaration pertained to certain prior activities relating to employment at the University of Southern California ("USC") of Dr. Zhong with respect to a National Science Foundation grant ("NSF grant"). The NSF grant was directed, at a high level, to real-time routing of delivery vehicles. Dr. Zhong's employment at USC involved conducting research under the NSF grant, but this research had a different focus from the research conducted by him in conjunction with obtaining his Ph.D., as well as the subsequent work performed to develop the claimed invention.

Applicant submits that based on the facts, it will be shown that Dr. Zhong's activities in conjunction with the NSF grant were 1) outside the scope of the proposed research to be performed by the NSF grant, and 2) outside a relevant time window associated with the NSF grant. Based on these facts, it is concluded the present invention cannot be considered as a subject invention made under the NSF grant.

Declaration

Dr. Zhong received a Ph.D. from USC in 2001. Prior to this, Dr. Zhong's declaration indicates that he received compensation for research work associated with a NSF grant performed under the supervision of Professor Randolph Hall while Dr. Zhong was a Ph.D. student. Such compensation began in the fall 1999 and extended to the spring of 2000 (the "relevant time period").

Professor Hall applied for and received the NSF grant for the purpose of studying real-time routing of delivery vehicles with certain assumptions. Upon information and belief, Dr. Zhong has identified this NSF grant as corresponding to NSF grant #97-32878, a copy of which was provided in the aforementioned Information Disclosure Statement. The description of the grant indicates various aspects, including the scope of the grant and focus of the research.

The NSF grant focused on real-time routing of delivery vehicles in the field. The description of the NSF grant proposal defines what "real-time" comprises. It states that "by real time, we mean scheduling pickups that are requested while vehicles are in the field...." (NSF Proposal, Project Summary, Section A, page A-1). Further, the NSF grant states that "it will be an advancement over prior research by directly considering service level constraints in the pickup and delivery industry, associated with guaranteed delivery time and pickup cutoff times." (Id.)

According to his declaration, Dr. Zhong received compensation and performed research under the NSF grant from a time period from about the fall 1999 and extending to the spring of 2000. Dr. Zhong avers that he received no further NSF grant money after he left USC in the spring of 2000.

According to Dr. Zhong's declaration, he conceived of the subject of his Ph.D. proposal, which later matured into his Ph.D. dissertation, prior to the relevant time period. Specifically, Dr. Zhong had identified the subject of his Ph.D. proposal in the summer of 1999, while a

cooperative employee at UPS. This is embodied in his Ph.D. proposal, which was also provided in the aforementioned IDS. In summary, the identification of the subject matter for his Ph.D. proposal was conceived while he was a cooperative employee at UPS and was prior to Dr. Zhong's receiving any NSF grant money.

The completion of Dr. Zhong's Ph.D. dissertation occurred after he left USC, when he was employed by UPS. Dr. Zhong's work on his Ph.D. culminated with the presentation of his dissertation on August 22, 2001.

Scope of Dr. Zhong's Ph.D. Work Contrasted With the Scope of the NSF Grant

According to Dr. Zhong's declaration, the subject matter of his Ph.D. research *excluded* from consideration 1) real-time routing of delivery vehicles and 2) accommodating service windows for the service stops (e.g., "pickups" or "deliveries"). In regard to the first point, Dr. Zhong states in his declaration that his Ph.D. research and dissertation itself explicitly presumed that customers (e.g., those with pickups and deliveries) are "revealed before the dispatching for that day." In regard to the second point, Dr. Zhong states in his declaration that "time windows for all customer are the same." Thus, Dr. Zhong's research was directed to planning the dispatching of vehicles prior to the vehicle initiating their deliveries in the field.

In contrast, the NSF grant proposal states that "by real time, we mean scheduling pickups that are requested while vehicles are in the field..." (NSF Proposal, Project Summary, Section A, page A-1, emphasis added). Further, the NSF grant proposal states that "it will ... directly consider[ing] service level constraints in the pickup and delivery industry, associated with guaranteed delivery time and pickup cutoff times." (Id.)

Thus, Dr. Zhong's Ph.D. research presumed customers are revealed *before* dispatch, and all customers have *the same* service window, which was opposite to the explicit focus of the NSF grant. Because the scope of Dr. Zhong's research was predicated on a fundamental distinction relative to the subject matter of the NSF grant, the applicants assert that Dr. Zhong's Ph.D. research was neither the product of, nor an expected outcome of, the NSF research. Although both were related to vehicle routing, the scope of the Dr. Zhong's research was distinct from the NSF grant.

Scope of Dr. Zhong's Invention Relative to His Ph.D Research

In addition to the above distinction, namely that Dr. Zhong's Ph.D. research was outside the scope of the NSF grant research, the present invention includes subject matter that is not disclosed in Dr. Zhong's Ph.D. dissertation. Dr. Zhong's declaration states that he performed additional work related to the invention, and that the "grid method for measuring route consistency" was not disclosed in his Ph.D. proposal, nor in the completed dissertation. This limitation can be found in the present independent claims (see e.g., independent claims 1 and 32 reciting "grid segment visiting frequency limit") and thus is a limitation of the claims of the present invention.

These facts show a further separation between the subject matter of the NSF grant and the claimed invention. Consequently, the claimed invention is not within the contractual scope of the NSF grant research as described, nor can it be concluded that Dr. Zhong's contribution to the invention is directly resulting from the course of his performance under the NSF grant.

Timing of Various Inventive Concepts Occurred Outside the Relevant Time Period

Dr. Zhong avers that he was employed to perform research under Prof. Hall, and received funding under the NSF grant, during the relevant time period, which was from the fall of 1999 to the spring of 2000. As indicated above, Dr. Zhong's declaration indicates that he conceived of certain aspects of his Ph.D. proposal prior to the relevant time period. [Further, Dr. Zhong's declaration states that his Ph.D. proposal was reduced to final written form and presented on August 22, 2001, which was after the relevant time period.]

According to these facts, the determination of the subject matter that was to be the focus of Dr. Zhong's Ph.D. research occurred prior to working on the NSF grant. Further, the completion of Dr. Zhong's Ph.D. research occurred well after he stopped receiving any NSF grant monies. Thus, it appears that Dr. Zhong's Ph.D research was not identified, nor finalized, during the relevant time period.

With respect to the claimed invention, additional concepts were developed by Dr. Zhong after the relevant time period. For example, the "grid method for measuring route consistency" was conceived after he left USC and was employed by UPS, which was well after the relevant time period.

These facts indicate that the claimed invention was conceived after the relevant time period. Further, the reduction to practice of the claimed invention could only occur after conception. Thus, the claimed invention was both conceived and reduced to practice after the relevant time period. These facts lead to the conclusion that the present invention is outside the temporal boundaries of the relevant time period, and present an additional basis as to why the present invention is not a product of Dr. Zhong's performance under the NSF contract.

Summary

Based on Dr. Zhong's declaration, the evidence shows that:

- 1) Dr. Zhong's claimed invention incorporates additional concepts developed separately from his Ph.D. research that were not disclosed in his Ph.D. dissertation, and which were conceived after he was no longer receiving any compensation from the NSF grant;
- 2) Dr. Zhong reduced to practice the present invention after he left USC and after he was no longer receiving any compensation from the NSF grant; and
- 3) Dr. Zhong's Ph.D. research was based on different assumptions of dispatch planning (including, that all customers are known in advance of developing a dispatch plan) relative to the NSF grant (which presumed 'real-time' dispatching).

The above facts lead to a conclusion that while Dr. Zhong did work under Professor Hall for a limited time on the different subject matter of the NSF grant, the present invention cannot be characterized as a "subject invention" made under the NSF grant.

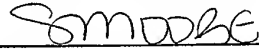
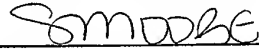
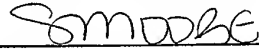
SUMMARY

Applicants have brought these facts to the USPTO's attention in the interest of candor and full disclosure, and requests their consideration in reviewing the present application. Based on the facts stated by Dr. Zhong in the previously provided declaration, it is submitted the claimed invention was not a subject invention made under a NSF grant. Should any further information be requested, the Examiner is asked to contact the undersigned attorney for the applicants.

Respectfully submitted,



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